Understanding Your Personal Rate of Return

Royal Mutual Funds Inc. (RMFI) uses a **dollar-weighted rate of return (DWRR)** to calculate your personal rate of return that's reported on your quarterly account statement.

Dollar-weighted rate of return reflects the investment performance of the underlying holdings in your account, as well as the impact of monies in and out of your account. With the DWRR, large cash flows in and/or out of your account can result in a significant variance when compared to another common method of performance calculation – time-weighted rate of return (TWRR).

Difference between DWRR and TWRR

The **DWRR** measures the impact of money flows in or out of your account, as well as the performance of the investments in your account. Also, periods in which more money is invested influence the performance to a greater extent than periods in which less money is invested.

The **TWRR**, however, only considers the investment performance of the holdings in the account.

Key considerations:

- Additional investments made prior to periods of stronger performance result in a higher DWRR than the TWRR

- Additional investments made prior to periods of weaker performance result in a lower DWRR than the TWRR

- Withdrawals made prior to periods of weaker performance result in a higher DWRR than the TWRR

- Withdrawals made prior to periods of stronger performance result in a lower DWRR than the TWRR

- No additional investments or withdrawals made during the period result in a DWRR equal to the TWRR

When compared to the TWRR, the DWRR methodology more closely aligns with your actual experience as reflected in your account balances.

Calculating dollar-weighted rates of return

Calculating DWRR for a one-year period:

$$\frac{\text{Change in balance of the account} - \text{deposits} + \text{withdrawals}}{\text{Starting balance} + (\text{deposits x fraction of the year remaining}) - (\text{withdrawals x fraction of the year remaining})}$$

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Example

Let's consider two investors starting with $10,000 at the beginning of the year and invested in the exact same fund. The only difference is that Investor B adds an additional $5,000 after six months.

Investment	Quarterly Return	Ending Balance Investor A	Ending Balance Investor B
January 1 to March 31	2%	$10,200	$10,200
April 1 to June 30	4%	$10,608	$10,608 **Add: $5,000**
July 1 to September 30	1%	$10,714	$15,764
October 1 to December 31	-5%	$10,178	$14,976
One year time-weighted rate of return		1.78%	1.78%
One year dollar-weighted rate of return		**1.78%**	**-0.19%**

Key points

1. The time-weighted rate of return does not factor the timing and size of monies in or out of the account (in this case, Investor B's $5,000 contribution), so both investors have the same TWRR since they held the same investment over the same time period.

2. Because Investor B had a larger percentage of the portfolio invested in the latter half of the year, when performance was negative, Investor B experienced a lower dollar-weighted rate of return than Investor A.

3. Where there are no money flows in or out of the account, TWRR and DWRR are equal (as we see for Investor A).

Calculating DWRR for periods greater than one year

For periods greater than one year, the rate of return is annualized (i.e. represents annual compounding of returns). This calculation requires an iterative approach since the rate that is being determined is part of the formula used to calculate it. Computer programs are used to generate multiple trials of rates of return into the formula until the result is derived.

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